

System Variables and System Functions

This document describes the purpose of Natural system variables and Natural system functions and how they are used in Natural programs.

The following topics are covered:

- System Variables
 - System Functions
 - Example of System Variables and System Functions
 - Further Examples of System Variables
 - Further Examples of System Functions
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System Variables

Natural system variables provide variable information, for example, about the current Natural session:

- the current library,
- the user and terminal identification;
- the current status of a loop processing;
- the current report processing status;
- the current date and time.

The information contained in a system variable may be used in Natural programs by specifying the appropriate system variables. For example, date and time system variables may be specified in a `DISPLAY`, `WRITE`, `PRINT`, `MOVE` or `COMPUTE` statement.

The names of all system variables begin with an asterisk (*). The typical use of system variables is illustrated in the example programs below.

The Natural system variables are grouped as follows:

- Application Related System Variables
- Date and Time System Variables
- Input/Output Related System Variables
- Natural Environment Related System Variables
- System Environment Related System Variables
- XML Related System Variables

For detailed descriptions of all system variables, see in the Natural System Variables reference documentation.

System Functions

Natural system functions comprise a set of statistical and mathematical functions that can be applied to the data after a record has been processed, but before break processing occurs.

System functions may be specified in a `DISPLAY`, `WRITE`, `PRINT`, `MOVE` or `COMPUTE` statement that is used in conjunction with an `AT END OF PAGE`, `AT END OF DATA` or `AT BREAK` statement.

In the case of an `AT END OF PAGE` statement, the corresponding `DISPLAY` statement must include the `GIVE SYSTEM FUNCTIONS` clause (as shown in the example below).

The following functional groups of system functions exist:

- System Functions for Use in Processing Loops
- Mathematical Functions
- Miscellaneous Functions

For detailed information on all system functions available, see Natural System Functions.

See also Using System Functions in Processing Loops in the System Functions reference documentation.

The typical use of system functions is explained in the example programs given below and in the examples contained in library SYSEXP.

Example of System Variables and System Functions

The following example program illustrates the use of system variables and system functions:

```

** Example Program 'SYSVAX01'
DEFINE DATA LOCAL
1 MYVIEW VIEW OF EMPLOYEES
  2 CITY
  2 NAME
  2 JOB-TITLE
  2 INCOME (1:1)
  3 CURR-CODE
  3 SALARY
  3 BONUS (1:1)
END-DEFINE
*
WRITE TITLE 'EMPLOYEE SALARY REPORT AS OF' *DATE /
READ (3) MYVIEW BY CITY STARTING FROM 'E'
  DISPLAY GIVE SYSTEM FUNCTIONS
    NAME (AL=15) JOB-TITLE (AL=15) INCOME (1:1)
  AT START OF DATA
    WRITE 'REPORT CREATED AT:' *TIME 'HOURS' /
  END-START
  AT END OF DATA
    WRITE / 'LAST PERSON SELECTED:' OLD (NAME) /
  END-ENDDATA
END-READ
AT END OF PAGE
  WRITE 'AVERAGE SALARY:' AVER(SALARY(1))
END-ENDPAGE
END

```

Explanation:

- The system variable *DATE is output with the WRITE TITLE statement.
- The system variable *TIME is output with the AT START OF DATA statement.
- The system function OLD is used in the AT END OF DATA statement.
- The system function AVER is used in the AT END OF PAGE statement.

Note how the system variables and system function are displayed:

EMPLOYEE SALARY REPORT AS OF 18/01/1999				
NAME	CURRENT POSITION	CURRENCY CODE	INCOME ANNUAL SALARY	BONUS

REPORT CREATED AT: 11:51:29.3 HOURS				
DUYVERMAN	PROGRAMMER	USD	34000	0
PRATT	SALES PERSON	USD	38000	9000
MARKUSH	TRAINEE	USD	22000	0
LAST PERSON SELECTED: MARKUSH				
AVERAGE SALARY: 31333				

Further Examples of System Variables

See the following example programs in library SYSEXP:

- EDITMX05
- READX04
- WTITLX01

Further Examples of System Functions

See the following example programs in library SYSEXP:

- ATBREX06
- ATENPX01